

(PCT Article 36 and Rule 70)

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/011608

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-13 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* 1-11 _____ received by this Authority on 13.05.2005 with letter of 12.05.2005
- nos.* _____ received by this Authority on _____
- ☐ the drawings:
- sheets _____ as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	3-7, 9	YES
	Claims	1, 2, 8, 10, 11	NO
Inventive step (IS)	Claims		YES
	Claims	1-11	NO
Industrial applicability (IA)	Claims	1-11	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
1.1 The present report refers to the following documents:			
D1: WO 98/33979 A (AKZO NOBEL N.V; EKA CHEMICALS AB; FROELICH, STEN; LINDGREN, ERIK; SIKK) 6 August 1998 (1998-08-06)			
D2: DE 199 52 354 A1 (NOPCO PAPER TECHNOLOGY HOLDING AS, DRAMMEN) 3 May 2001 (2001-05-03)			
D3: US 6 001 166 A (ETTL ET AL) 14 December 1999 (1999-12-14)			
D4: EP 1 176 254 A (ATO B.V) 30 January 2002 (2002-01-30)			
D5: WO 01/88262 A (BAYER CORPORATION) 22 November 2001 (2001-11-22)			
1.2 The present invention relates to a solid mixture of a compound from the group of C ₁₄ to C ₂₂ alkyldiketenes and starch, wherein the reactive sizing agent and the starch are mixed in the presence of a destructuring agent. The mixture is produced under the influence of shear forces at temperatures of 65 to 250 °C. The melt is then cooled to room temperature. The aqueous dispersions can be used for the internal- or surface sizing of paper.			

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<p>1.3 However, a sizing agent mixture, or sizing agent dispersion, as per claim 1 appears to be known already from D1, D2 and D3 (see D1, claims 1-22, examples 4, 6, 9; see D2, claims 1-9, examples 1-4; see D3, claims 1-8; see also point 4 below). The subjects of the present claims 1 and 2 are therefore not novel over the disclosures of D1 to D3 (PCT Article 33(2)).</p> <p>In addition, it also appears possible to derive the method features of claim 8, and claims 10 and 11, from D1 to D3, and therefore the subjects of these claims do not appear to meet the requirements of PCT Article 33(2) either.</p> <p>1.4 The individual features of the dependent claims do not at present appear to contain any novel and inventive subject matter (PCT Article 33(2) and (3)). A combination of these features could, however, meet the requirements of PCT Article 33(3).</p>

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Box No. VI

Certain documents cited

1. Certain published documents (Rule 70.10)

Application No.
Patent No.Publication date
(day/month/year)Filing date
(day/month/year)Priority date (valid claim)
(day/month/year)

2. Attention is drawn to document WO-A-04 022 850.

2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure

Date of non-written disclosure
(day/month/year)Date of written disclosure
referring to non-written disclosure
(day/month/year)

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Box No. VII **Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

3. D1, D2, D3, D4 and/or D5 should be acknowledged in the description as the closest prior art (PCT Rule 5.1(a)(i)-(iv)).

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

4.1 The present claim 1 specifies that the reactive sizing agent is mixed with at least one starch in a melt in the presence of a destructuring agent for starch. The destructuring agents in question can, e.g., be water. The exact meaning and function of the destructuring agent is not clear (PCT Article 6).

In addition, it is not clear at present to what extent the destructuring agent can be replaced or not by the emulsifier (see claim 2).

4.2 The exact meaning of the wording "solid mixtures" is at present not clear (PCT Article 6). As is already explained above, D1 to D3 disclose dispersions of starch and C₁₂-C₂₂ AKD mixtures. It is also clear that water may be present in the solid mixture as a destructuring agent. However, it is not clear when the mixture becomes "solid". It appears that the difference between a "solid mixture" and a dispersion as per D1 to D3 is only a matter of the amount of water present.